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Some perplexities about Peirce's “skeleton ideas”

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Abstract: In seven paragraphs written in 1893, Peirce puts forward a puzzling and thought-provoking claim about the role of rather mysterious “skeleton-sets” in processes of association of ideas: all association of ideas, either by resemblance or by contiguity, requires and involves “skeleton sets”, whose iconic dimension is necessary for these processes to take place. Because it relates to the question of the nature and mode of the existence of ideas, to that of the role of icons in thought, and to that of the content of concepts, this thesis is clearly of great importance for Peirce’s philosophical system. In this paper, I would like to examine two questions: (1) what is the justification of Peirce’s claim that “skeleton-sets”, or “skeleton ideas”, are *necessary* for an association of ideas – by resemblance or by contiguity – to take place in one’s mind? (2) Is this claim compatible with Peirce’s philosophical system?

Keywords: Charles Peirce, skeleton-sets, association of ideas, iconicity

In this short paper, I want to focus on seven paragraphs written by Peirce in 1893, in which he puts forward a puzzling and thought-provoking claim about the role of rather mysterious “skeleton-sets” in processes of association of ideas: all association of ideas, either by resemblance or by contiguity, requires and involves “skeleton-sets”, whose iconic dimension is necessary for these processes to take place. As far as I know, neither this thesis – which does not appear anywhere else in Peirce’s writings – nor the exact nature of these skeleton-sets has received proper attention from Peirce scholars. Yet because it relates to the question of the nature and mode of the existence of ideas, to that of the role of icons in thought, and to that of the content of concepts, this thesis is clearly of great importance for Peirce’s philosophical system. Since the paragraphs in which this thesis is expressed have been largely overlooked in the Peircean literature, it will certainly be helpful to begin by quoting at length the passages in which Peirce most clearly expresses it:

I hear at this moment a bird calling. I think he is on a lilac-tree close by the verandah. Every time he calls, I seem to see the bird. It is not much like *seeing*, but still it is a visual idea. Now that visual idea I think of as the bird *itself*, and the *call* I think of as something appertaining to that idea [...]. But I have besides the visual idea of the bird and the sound of the call, a skeleton idea of *connection between two things*. It is a dim idea in itself; but if I want to think about it, I have a visual idea of two dots connected by a line, or of a knot in a string. However, when I just think of the bird calling, I do not think the idea of connection so distinctly. Nevertheless, I *do* think it, and think of the call and the visual bird as belonging to it. Under ordinary circumstances, I might not remark the idea of connection; but *potentially* it would be there, that is, it would be all ready to be called into existence, as soon as there should be need of it. (CP 7.426)

In all association, even by contiguity, the potential idea of the *form* of the set is *operative*. It is the instrument without which the association would take no hold upon the mind. It is not necessary that the formal idea should be clearly apprehended [...]. The skeleton of the set is something of which a mathematical diagram can be made. It is something in itself intelligible; though it is not necessary that it should emerge into the field of easy attention. (CP 7.427)

I saw a lady yesterday. I had not seen her since one evening when she and her husband drove up as my wife and I were standing at the well. A handsome man! He and she are both very fond of his nephew who seems to us too a charming fellow; and only yesterday my wife showed me a newspaper-paragraph that he had been arrested for debt. So his centi-millionaire cousin paid his tailor's bill of \$5000. The last time I saw him he was hardly presentable. So my thoughts ran on in spite of me. First, the lady. Then, she in a set with her husband, my wife, myself, the buggy, and the well. Then mingles with this set another, the lady, her husband, my wife, myself, the nephew, and his agreeability; now that nephew brings in something concentrating him, my wife, myself, the newspaper. I forget the others. Then, him, and that Newport house, and the Croesus cousin. The skeleton-sets themselves I do not think particularly about; but they are operative. The marriage relation, the familiar intercourse of people in the country, the relation of handsome nephew to a message; newspaper-publications about people; the relation of a man of stupendous fortune to his cousins. All of these skeleton-sets, though not attended to, influenced my thought; and they followed one another by the same alternating process of taking up and dropping. (CP 7.431)

When these skeleton-sets were joined intermediately to the passage from one to another, these connections of them had *their* skeleton-sets. But these latter were all of that simple form expressible by the sign +, and had no specific character. There are, however, cases in which the connections of the skeleton-sets have skeleton-sets of more interest. (CP 7.432)

In this paper, I would like to examine two questions: (1) what is the justification of Peirce's claim that 'skeleton-sets', or 'skeleton ideas', are *necessary* for an association of ideas – by resemblance or by contiguity – to take place in one's mind? (2) Is this claim compatible with Peirce's philosophical system?¹ In order to address these two questions, I shall first consider four objections that, having read the passages quoted above, one might be spontaneously inclined to pose against Peirce's claim and his mode of argumentation. Two of these objections show that his thesis about the role of skeleton-sets does not seem to be consistent with his philosophical system as a whole [objections (1) and (3)]; and the other two – which are neither based on this system, nor about the internal coherence of his views – indicate that what he puts forward in these passages seems rather implausible [objections (2) and (4)]. As a result, this series of objections will make it clear that Peirce's point in these passages is particularly difficult to grasp and hence to defend. More specifically, the objections will outline how Peirce's claim should certainly *not* be understood.

(1) If it is true that "in all association, even by contiguity, the potential idea of the *form* of the set is *operative* [and] is the instrument without which the association would take no hold upon the mind" (CP 7.427), then this means that skeleton ideas act upon us without having to be interpreted. As such, they possess a kind of univocality that Peirce refuses to attribute to any sign (perhaps with the exception of pure index). Even in the dialogue that, for Peirce, is constitutive of thinking – where our "self of one instant appeals to [our] deeper self for his assent" – this dialogue is "conducted in signs that are mainly of the same general structure as words" (CP 6.338). Accordingly, we have to express our thoughts "so that that virtually other person may understand it" (CP 7.103). In such a dialogue, we can employ a language "that is free from much explanation that would be needed in explaining oneself to quite a different person", but we nonetheless have to "establish conventions" with ourselves in order to be understood by that virtually other person (CP 7.103).

(2) If we follow the line of reasoning advanced by Peirce in these paragraphs, an infinite regress seems to loom: if any sequence of ideas A and B implies an operative icon of the form of their relation, and if this icon is itself an idea, then it seems to ensue that another operative icon has to intervene in the course of the process in question:

¹ Before dealing with these questions, it is important to note that we should not place too much importance on Peirce's employment of the concept of skeleton, since he often interchangeably uses 'skeleton-diagram' and 'outline sketch' in his writings (cf. CP 2.227). In mathematics, however, an object and its skeleton are homotopic without being homeomorphic. The function of the schematic dimension of the skeleton is to emphasise this homotopy, and so to facilitate analysis of some of the properties of the object that is homotopically represented. In the paragraphs under consideration, the use of the concept of skeleton is simply due to the fact that the schemas in question consist in a certain number of dots connected by lines in a way that is similar to the way in which the ideas so represented are connected.

an operative icon of the relation between, on the one hand, the ideas A and B, and, on the other, the operative icon that was supposed connect A and B together. And so on, *ad infinitum*.

(3) The way in which Peirce conceives of relations between ideas here involves a discontinuist conception of intellectual life that is in conflict with what he repeatedly claims in his writings: if our ideas are like the dots of a skeleton, in which certain connections are established with other dots, and if these skeletons are themselves connected in the same way to other skeletons, this entails (a) a holistic view of the content of our ideas, but also (b) an atomistic view of these ideas themselves.

It entails a holistic view of their content because determining what has been thought at a given moment requires taking into account the whole network of ideas and the skeletons of ideas in which all our ideas are connected. [In a similar spirit, "our whole past experience" is for Peirce "continually in our consciousness, though most of it sunk to a great depth of dimness" (CP 7.547)].

It entails an atomistic view of our ideas because if our ideas are like the interconnected dots of a skeleton, this interconnection is that of absolutely distinct or discrete elements: dots, or skeletons made of lines and dots. Now, such a view is incompatible with Peirce's claim that "an idea is nothing but a portion of consciousness having in itself no definite boundaries, except so far as it may be of a different quality from contiguous ideas" (CP 7.553n). For Peirce, the sole "law of mind" is that "ideas tend to spread *continuously* and to affect certain others which stand to them in a peculiar relation of affectability" (CP 6.104, my emphasis) – or, more precisely, tend to "attach themselves in thought so as to form systems" (CP 7.467). Thus, "that ideas can nowise be connected without continuity is sufficiently evident to one who reflects upon the matter" (CP 6.143). The inferential/associative processes of which our psychic or cognitive life is constituted would not occur without continuity – *i.e.* ideas would not have this tendency to affect certain others without continuity: continuity "makes the connection of ideas possible" (CP 6.143). Accordingly, if:

[...] we regard ideas from a nominalistic, individualistic, sensualistic way, the simplest facts of mind become utterly meaningless. That one idea should resemble another or influence another, or that one state of mind should so much as be thought of in another, is, from that standpoint, sheer nonsense. (CP 6.150)

Because for Peirce "an idea is nothing but a portion of consciousness having in itself no definite boundaries, *except so far as it may be of a different quality from contiguous ideas*" (CP 7.553n), it can be argued that our ideas – whose essential property is this "lack of haecceity" that renders the psychic life continuous – become at the same time individualized in virtue of this continuity. However, they do not thereby become entirely devoid of their inherent indetermination.

In this respect, we should be careful not to suppose that ideas, as they are, or as they pass through our minds at any given moment, really possess the kind of individuality that they appear to possess when we are trying to grasp what we had in mind in a given moment and propositionally identify them. It is “practically speaking” only that “there is a flow of ideas through the mind, *that is, of objects*, of which we have the barest glimpse while they are with us, but which are reported by memory after they have been associated together and considerably transformed” (CP 7.424, emphasis added). In other words, it is the action of reflexively identifying our ideas that cuts this flow into distinct and separate entities – which are supposed to make true or false our reflexive thoughts about what we had in mind in a certain moment (cf. CP 7.636). These entities are “subsequent creations”, “imaginary objects”, but not the “train of ideas”, “the movement of mind itself” (CP 7.376). Correlatively, our ideas can become objects of thought and knowledge only once they have begun to generalize: “By the time we can examine our ideas at all, we find the process of combining them into sets has begun” (CP 7.426).

(4) The fourth and last objection is that the idea expressed in CP 7.431 looks unacceptable if it is understood in the following way: when Peirce’s thoughts run on in spite of him during his conversation with the lady about her nephew, he is indistinctively, and implicitly, thinking about things such as “[t]he marriage relation, the familiar intercourse of people in the country, the relation of handsome nephew to a message; newspaper-publications about people; the relation of a man of stupendous fortune to his cousins”. In other words, Peirce’s reflexive attention, or focus, is not directly turned towards such things, but he nevertheless really thinks about them. This seems particularly implausible, because when one judges that *S* is *P*, it is certainly not true, for instance, that one is thereby *ipso facto* thinking about everything that one takes to be true of *S* and of what possesses the property *P*.

If all or some of the foregoing objections I have articulated are – as I tend to think – legitimate, they illustrate a way in which Peirce’s claim that all association of ideas, either by resemblance or by contiguity, requires and involves skeleton sets should *not* be understood. This is not enough, however, to conclude that we would be better off setting aside this claim when it comes to building a coherent and plausible interpretation of Peirce’s view on the process of the association of ideas. Indeed, since, as I indicated at the beginning of this paper, this claim and the way Peirce argues for it directly involve and concern his view of the nature and mode of the existence of ideas, the role of icons in thought, and the content of concepts, it cannot but be of central importance. Moreover, because – as I shall emphasize in the rest of this paper – this claim about the role and nature of skeleton-sets clearly echoes some well-known remarks made by Peirce in 1893 about the association of ideas and the nature of concepts, it can be argued that setting aside this claim would come down to depriving ourselves of crucial textual resources when it comes to understanding the

exact significance of these remarks. More generally, I shall suggest that by comparing these remarks with the claim that stands at the centre of this paper, new light can be shed on them and a deeper understanding gained.

Let us first consider the following possible interpretation of CP 7.431: while Peirce is really and distinctively thinking about the lady, her husband, his wife, the nephew, his agreeability, the newspaper, the Newport house, and the Croesus cousin, he has in mind, in some vague sense, the "visual idea" of a series of skeletons (that is, of dots connected by lines). And this series of skeletons is nothing but Peirce's conception of the "marriage relation, of the familiar intercourse of people in the country, of the relation of handsome nephew to a message; or of the relation of a man of stupendous fortune to his cousins". They have influenced Peirce's thought, even while they are "not attended to". Most importantly, it is because "the potential idea of the *form* of the set is *operative*" even if not attended to, that such an inferential or associative process takes place in Peirce's mind.

As it stands, such a view is rather obscure. However, it might become clearer if we relate it to two other passages from Peirce, both written in the same year – 1893. Here is the first: a concept is not "a mere jumble of particulars [... but] the living influence upon us of a *diagram*, or *icon*, with whose several parts are connected in thought an equal number of feelings or ideas" (CP 7.467). Moreover – Peirce goes on to argue –, this diagram or icon "is not always clearly apprehended" (CP 7.467).

The second passage is about association by resemblance. For Peirce, in this kind of association, ideas are not associated on the basis of an intrinsic similitude that is discerned in them after a sort of (subconscious) mental inspection: "The similarity of two ideas *consists* in the fact that the mind naturally joins them in thought in a certain way" (CP 7.392; cf. CP 4157). As Peirce writes elsewhere: "without association by resemblance there could be no general ideas and no resemblances" (CP 7.498). He explains this view as follows:

I find myself disposed to say [that two ideas] are closely allied; *in that disposition their similarity consists*. For they are two different ideas [... and therefore] have nothing in common, unless it be that the mind naturally throws them together. (CP 7.392)

More exactly, these two ideas have in common the fact that they "act alike": due to (a) their iconic qualities, and (b) the inward or "occult nature of ideas and of the mind", they have been placed or "associated" into the same "set", or "connecting idea" (CP 7.392). Therefore, the association (or "suggestion") by resemblance of an idea with (or by) another is always *indirect* for Peirce: an idea first and directly "calls up the idea of the *set* in which the mind's occult virtue places it, and that conception perhaps gives, owing to some other circumstance, another of the particular ideas of the same set"

(CP 7.392). According to Peirce, the same goes for association by contiguity, where “an idea calls up the idea of the *set* in which experience has placed it, and thence one of the other ideas of that set” (CP 7.392).

The claims defended in these two passages – that a concept is not “a mere jumble of particulars [...but] the living influence upon us of a *diagram*, or *icon*, with whose several parts are connected in thought an equal number of feelings or ideas” (CP 7.467), and that association by resemblance and by contiguity are indirect, since an idea first and directly calls up the idea of the *set* – indisputably echo the point Peirce intends to make about “skeleton-sets”: namely, that without them there would be no inferential or associative processes, either by contiguity or by resemblance, and that this is so because “the potential idea of the *form* of the set is *operative*” in our minds (in other words, has a “living influence upon us”).²

What is also indisputable is, first, that for Peirce these skeleton-sets should not be conceived as representations or mental images, which would merely accompany one’s thought processes, but not be required for them to take place. These skeleton-sets or ideas do not explain why a given particular idea has been associated in one’s mind with another particular idea, but they do explain why it was possible for them to be associated. Second, skeleton-sets could not play this role for Peirce if they were not iconic in nature – that is, if they did not have a *form*. Third, being *operative* while being *potential* in nature, the skeleton-sets can be viewed as cognitive *habits*, or directly related to them (which means for Peirce that they do not simply consist in composite or general ideas). Hence, these skeleton-sets could arguably be characterized as *the form of our cognitive habits*. This implies that these habits (which are our *conceptions*, for Peirce) have to have an iconic dimension in order to exert any power over us. Fourth, skeleton-sets indicate both the structure of our thoughts and their content. Fifth, the way in which a given mind operates when some of its ideas are associated needs to be at least vaguely or tacitly perceived by that mind in order for such an operation to take place.

All of this is – just as in the passages I cited at the beginning of this paper – rather sketchy. But the issue should, in my opinion, receive more attention from Peirce scholars – in particular when it comes to determining the exact role and nature of the infamous “composite photographs” which, according to Peirce, are involved in any of our predicative judgments.³ My sole aim in this paper was to emphasize the importance of the claim, made in some paragraphs curiously neglected by Peirce scholars, that all association of ideas requires and involves “skeleton-sets”, whose iconic dimension

² Another claim, also from 1893, is comparable to the “skeleton-sets” thesis: namely that a natural-language sentence like “Every woman loves some child of hers” can be depicted as a “neural net”, in which it is made obvious “that *inherence*, which it is the peculiar function of categorical propositions to express, is nothing but a special variety of connection” (MS 410). I owe this idea to Ahti Pietarinen.

³ See, on this issue, Hookway 2002, 2007, and Gaultier 2014.

is necessary for these processes to take place; to show how this claim should *not* be understood; and to indicate the direction in which we should proceed to make sense of this claim and consider defending it.

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Некоторые недоумения по поводу “скелет-идей” Пирса

В семи обзацах, написанных в 1893 году, Пирс выдвигает заявление о роли довольно загадочных “скелет-наборов” в процессах ассоциации идей: все ассоциации идей, либо по сходству или по смежности, требуют и предполагают иконических «скелет-множеств». Этот тезис явно имеет большое значение для философской системы Пирса. В этой статье я хотел бы рассмотреть два вопроса: (1) что обосновывает идею Пирса, что «скелет-множества» или «скелет идеи» необходимы для объединения идей по сходству или по смежности? (2) совместим ли это требование с философской системы Пирса?

Mõned hämmingukohad seoses Peirce'i "skelettideedega"

Seitsmes 1893. aastal kirjutatud lõigus esitab Peirce raskestimõistetava ning mõtlemaärgitava väite üsnagi mõistatuslike “skelettkomplektide” rolli kohta ideede assotsieerumisprotsessides: kõik ideedeassotsiatsioonid, olgu siis sarnasusel või kaasnevusel põhinevad, nõuavad ja sisaldavad “skelettkomplekte”, mille ikooniline mõõde on vajalik nende protsesside toimumiseks. Et see on seotud ideede olemasolu olemuse ja viisi küsimusega, ikooni rolli küsimusega mõtlemises ja mõistete sisu küsimusega on see tees Peirce'i filosoofilise süsteemi jaoks ilmselgelt oluline. Käesolevas artiklis tahaksin vaadelda kahte küsimust: (1) mis õigustab Peirce'i väidet, et “skelettkomplektid” või “skelettideed” on *vajalikud*, et kellegi mõtetes leiaks aset ideede assotsieerumine – kas sarnasuse või kaasnevuse kaudu; ja (2) kas see väide sobib Peirce'i filosoofilise süsteemiga?